

Genetics

ARE HYBRIDIZATION DYNAMICS BETWEEN *CYPRINODON BIFASCIATUS* AND *C. ATRORUS* DIFFERENT IN NATURAL VS. HUMAN MODIFIED HABITATS?

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Abstract

Previous genetic analyses revealed that contemporary hybridization between two endangered pupfishes, *Cyprinodon bifasciatus* and *C. atrorus*, endemic to Cuatro Ciénegas, Mexico has occurred for a relatively long time. The most dramatic effect has been an apparently ancient replacement of *C. bifasciatus* mitochondrial genome by that of *C. atrorus* throughout the basin. Nuclear gene introgression, however, is minimal and apparently confined to *C. atrorus* populations subject to contemporary hybridization. Limited introgression is thought to be significantly influenced by environmental tolerance differences between these species (Carson unpublished). However, because modern hybridization occurs under natural and artificial conditions, it is important to determine whether human influences can alter the natural balance of hybridization between these endangered species. To help address this concern, we are assessing the spatio-temporal relationship between genetic and environmental variation in a region of hybridization that has been highly modified by construction of irrigation canals (Rio Mesquites-Canal Tio Julio system). Aquatic physicochemical characteristics (pH, specific conductivity, and temperature variation) and frequency of species specific nuclear alleles (CK, RAG 1, and TPI-B) will be analyzed for 12 sites that were sampled in winter and summer 2001. Results from this survey will be compared with data previously obtained (Carson unpublished) from a system of *natural* hybridization between *C. bifasciatus* and *C. atrorus* (Rio Churince system). Preliminary data and potential significance of human habitat modification on hybridization dynamics will be presented.